



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 332 998 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 158(3) EPC

(43) Date of publication:
06.08.2003 Bulletin 2003/32

(51) Int Cl.7: **B65H 37/00**

(21) Application number: 01980548.0

(86) International application number:
PCT/ES01/00405

(22) Date of filing: 26.10.2001

(87) International publication number:
WO 02/038476 (16.05.2002 Gazette 2002/20)

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**

(72) Inventor: **CAMPINS MASRIERA, Juan Antonio**
08010 Barcelona (ES)

(30) Priority: 07.11.2000 ES 200002678

(74) Representative:
Morgades Manonelles, Juan Antonio
Morgades & Del Rio, S.L.
C/Rector Ubach, 37-39 bj. 2.o
08021 Barcelona (ES)

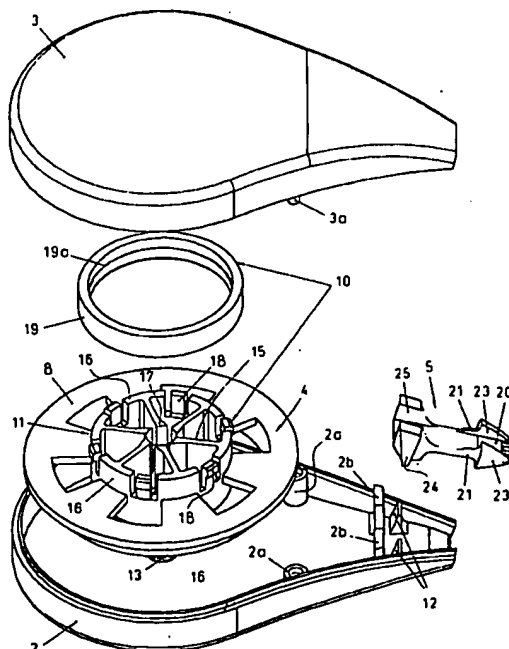
(71) Applicant: **CAMPINS MASRIERA, Juan Antonio**
08010 Barcelona (ES)

(54) DISPENSER OF ADHESIVE TAPE, CORRECTION TAPE AND THE LIKE

(57) It comprises a symmetrical housing, a head, and a wheel carrying a tape spool and clutch means as well as means to permit rotation of the wheel in a single direction comprising inclined legs at an angle ranging from 2° to 30° provided at the wheel which ends rest on a shaft formed in the housing permitting rotation of the wheel in a single direction by locking. The clutch means

allow sliding between the movement of the wheel and the spool and they comprise outwardly projecting flanges provided at the wheel the ends of which contact a ring fitted between the spool and the wheel further permitting to hold the tape spool. The head includes stops for preventing the tip from being excessively deformed and inclined walls guiding the tape towards the head.

FIG.8



EP 1 332 998 A1

Description

[0001] The present patent application relates, as stated in its title, to a "DEVICE FOR APPLYING CORRECTION TAPE, ADHESIVE TAPE AND THE LIKE" which novel manufacturing, conformation and design features fulfil the purpose to which it has been specifically conceived, with a maximum safety and effectiveness.

[0002] There are known devices for applying correction tape that essentially comprise a housing that is conventionally formed by two pieces which may be coupled to one another and intended to house inside a correction tape wound around a support spool which is mounted on a pay-out reel. This pay-out reel is rotatably mounted in one of the two said parts of said housing.

[0003] The known devices for applying correction tape are also provided with a head which purpose is to apply said correction tape to the support paper where the writing to be corrected is. In operation, the head is pressed on the paper surface at the same time that the device is made to slide thereon to apply the tape and to correct the text.

[0004] The housing also receives a rotatably mounted take-up reel for winding the correction tape that has been already used.

[0005] The devices for applying correction tape in the state of the art are usually provided with a clutch mechanism to allow a continually variable difference between the angular speed of the pay-out reel and that of the take-up reel. This speed difference is due to the correction tape external diameter that is reduced as it is used while the already used correction tape external diameter that is wound in the take-up reel is increased. As a consequence, the supplying speed is different from the winding speed of the correction tape. The clutch mechanism causes the pay-out reel is forced to be slidingly rotated regarding the correction tape support spool, thus compensating said speed difference. The correction tape tension is therefore substantially similar in both reels which are rotating in a synchronized way during the tape dispenser operation. To achieve this synchronization, the known dispensers are provided with a clutch mechanism having, for example, a frictional member disposed between the pay-out reel and the correction tape support spool, which can be an elastomeric ring that allows said sliding, or by means of a spring and the like.

[0006] Some conventional correction tape dispensers in the state of the art to which the present invention belongs are also provided with means to prevent the pay-out reel returning if the correction tape dispenser is used the other way round by the user. This means may consist, for example, of a ratchet mechanism, although there exist dispensers lacking these means to avoid the return of the supply spool.

[0007] The present invention provides a new device for applying correction tape, adhesive tape and the like, of cost-effective production and great effectiveness,

which has a maximum constructive simplicity, as it will be detailed -below, as well as other many advantages that will be clear from the description enclosed herein.

[0008] The device for applying correction tape, adhesive tape and the like of the present invention is basically comprised by four elements:

- a housing;
- a wheel;
- a head; and
- a support spool for correction tape, adhesive tape or the like.

[0009] According to an advantageous feature of the present invention, the wheel of the device for applying correction tape, adhesive tape and the like comprises an upper portion adapted to receive the support reel for supplying correction tape, correction substrate, adhesive tape or the like that is to be applied to a text to correct and then to be overtyped. The wheel also has a lower portion for taking up the used correction tape. Provision of wheel for supplying and taking up the tape gives the dispenser of the present invention a very compact configuration which may be easily used during application.

[0010] The wheel itself is also provided with clutch means provided in said upper portion intended to synchronize the movement of the wheel and that of the correction tape. The wheel is also provided with means to permit rotation thereof in a single direction.

[0011] Said clutch means and said means to permit rotation in a single direction will be described later in greater detail in the present specification.

[0012] The housing of the tape dispenser of the invention comprises an upper body and a lower body which can be coupled to one another. The housing of the device for applying correction tape, adhesive tape and the like of the present invention is designed to protect the mechanical assembly for supplying correction tape formed by the wheel and the head.

[0013] According to an advantageous feature of the present invention, the housing has a symmetrical configuration, that is to say, the upper and lower bodies has a plane of symmetry that is perpendicular to the common plane thereof (that coincides to section A of fig. 6). Furthermore, since the head is arranged on a substantially parallel plane to this plane that is common to both bodies of the housing, the device of the present invention is apt to be used either by right-handed and left-handed users in a natural and comfortable way. On the other hand, due to the symmetry of the housing, there is no need for using guides for guiding the correction tape inside of the device as it is guided in a natural way towards the application head.

[0014] The upper body of the housing is pressure fitted inside the lower body by means of a peripheral recess. Said upper body is provided with ridges adapted to be introduced into hollow cylinders formed in said low-

er body with the purpose of ensuring the closing of the two bodies of the housing.

[0015] Additionally, the lower body of the housing includes guides to fasten the head and said hollow cylinders that allow a correct assembling of the ensemble.

[0016] According to a further feature of the tape dispenser of the invention, the upper body of the housing has a surface curved towards the head in continuity with the general configuration of the head, said surface being narrowed towards said head and thus allowing to carry out correction tape guide functions in its travel towards and from the tip of the head.

[0017] As it has been explained previously, the wheel has the purpose of unwinding the new tape, winding the used tape and, also, it is provided with means to allow rotation thereof in a single direction as well as clutch means. The wheel is assembled in a hollow cylindrical shaft emerging perpendicularly to the lower body of the housing.

[0018] The means to permit rotation thereof in a single direction comprise legs formed at the inner portion of the wheel, slightly extending inclined toward the interior thereof so that their ends rest on the lateral surface of said cylindrical shaft of the housing, forcing the wheel to rotate in a single direction.

[0019] These legs are inclined at an angle ranging from 2° and 30° although, according to a preferred embodiment of the device for applying correction tape, adhesive tape and the like of the present invention, the angle of inclination of the legs has a value of 7°. This inclination is properly calculated so that the legs permit rotation of the wheel in a single direction, said legs being locked in the shaft of the housing when the wheel is made to be counter rotated.

[0020] In the design of the means to permit rotation in a single direction, it has been sought that the number of legs is minimum and it is further possible to assure a correct centering and positioning of the assembly. According to an embodiment of the present invention, there are provided six legs.

[0021] The geometry of the legs has been appropriately designed so that a locking phenomenon is established with an easily reachable coefficient of friction. In this way, when the user tries to use the device for applying correction tape the other way around, that is to say, making the device to be displaced so that the already used correction tape goes out from the housing to the new tape support spool, said legs are frictionally locked on the shaft of the housing where the wheel is fitted preventing it from being rotated to that direction. Therefore, the shaft of the housing has a frictional lateral surface such that it encourages locking of the means to permit rotation in a single direction, even though the invention also contemplates the possibility that this cylindrical shaft is splined. With this configuration, the means to permit rotation thereof in a single direction prevent the correction tape from being unwound by the user in case the device is used the other way around.

[0022] According to the present invention, as stated before, the wheel itself is provided with clutch means that are fitted at the upper portion thereof. Said clutch means are intended to synchronize the movement of the wheel and the correction tape and they comprise a plurality of flanges formed at, and outwardly radially projecting from, the upper portion of the wheel. The ends of these flanges are in contact with the lateral surface of a plastic ring fitted between the correction tape support spool and the upper portion of the wheel. Said ring has the purpose of allowing the relative rotation of the wheel and the correction tape support spool to compensate for the tension between the tape that is being supplied and the tape that has been already used.

[0023] Said plastic ring is provided with at least an inner step intended to fasten it in the wheel. Preferably, the ring comprises two inner parallel steps for fastening it in the wheel provided at equal distances from the edge of the ring. This gives a symmetrical configuration that facilitates assembling of the ensemble since the position of said ring is not important at the wheel assembly stage.

[0024] The design of the clutch means advantageously allows that, during the use of the device, the tension between the supplied tape and the wound tape are always maintained. The clutch operates by contact friction between the tape support spool and the ring fitted in the wheel. The flanges causes a pressure on the ring so that the necessary friction exists to supply or to retain the correction tape and to always maintain the correct tension on the tape and they further prevent the correction tape support spool from coming out during operation of the device for applying the tape.

[0025] The head is the element that applies and guides the correction tape of the device. It is provided with a tip designed to be able to absorb the necessary deformation and force when using the device.

[0026] In order to reinforce the tip of the head when it is subjected to the application efforts there are provided reinforcement ribs. There exist walls at both sides of the head the function of which is to appropriately guide the correction tape through the tip of the head.

[0027] The head is also provided with stops arranged adjacent to said walls which make contact with the upper housing and prevent this from being unduly deformed during the correction tape application and that tape from being pinched between both pieces. It is also provided with lateral lugs which are used for the assembly of the head in the lower body of the housing.

[0028] According to a further feature of the applicator head, it comprises means for guiding the correction tape in its travel towards and from the tip of the head consisting of two lateral walls that are both inclined in the same direction. These walls are provided with a rounded edge provided at the correction tape inlet portion towards the head and back to the inside of the housing, respectively.

[0029] The upper portion of the wheel may have, according to a further embodiment of the present invention, a cover coupled thereto. This cover rotates during

the correction tape application and it conceals the wheel (the housing is transparent) and, in general, the inner mechanism of the tape dispenser. Said cover is liable of carrying ornamental or advertising motifs thereon, for example figures distributed radially in said cover rotating at the same time as the correction tape is applied. The cover may be a circular plate concealing the wheel but not the correction tape supporting spool so that the user can see how much remaining tape is left. If the cover is made of a transparent material it may be conveniently sized to cover the correction tape support spool, painting or decorating part of the cover so that the tape to be used is visible.

[0030] Finally, the fact should be stressed that the general geometry of the head follows the shape of the housing so that it does not break the general aesthetic line of the device.

[0031] From the detailed description of a preferred embodiment of a device for applying correction tape, adhesive tape and the like according to present invention the features and the advantages thereof will be more clearly understood. This description will be given hereinafter by way of non-limitative example, with reference to the accompanied drawings, in which:

Fig. 1 is a perspective view of the lower body of the housing of a preferred embodiment of a device for applying a corrector tape according to the invention; Fig. 2 is a perspective view of the upper body of the housing of the embodiment of the device for applying a corrector tape of fig. 1;

Fig. 3 is a perspective view of the device for applying a corrector tape with the upper and lower bodies of the housing already mounted, including the applicator head where the plane of symmetry has been shown;

Fig. 4 is an elevational side view of the device for applying a corrector tape according to fig. 3;

Fig. 5 is a top plan view of the device for applying a corrector tape according to fig. 3;

Fig. 6 is a bottom plan view of the upper body of the housing of the device for applying a corrector tape according to fig. 2;

Fig. 7 is an elevational side sectional view of the upper body of the housing of the device for applying a corrector tape according taken along plane A-A' in fig. 6;

Fig. 8 is an exploded perspective view of the device for applying a corrector tape in which all the parts therein are shown with the exception of the correction tape support spool which has been left out for the sake of clarity;

Fig. 9 is an exploded perspective view of the applicator head of the device for applying correction tape;

Fig. 10 is an elevational view of the applicator head of the device for applying correction tape;

Fig. 11 is a top plan view of the applicator head of

the device for applying correction tape;

Fig. 12 is a bottom plan view of the applicator head of the device for applying correction tape;

Fig. 13 is a front elevational view of the applicator head of the device for applying correction tape;

Fig. 14 is a rear elevational view of the applicator head of the device for applying correction tape;

Fig. 15 is a bottom perspective view of the wheel of the device for applying correction tape;

Fig. 16 is a top perspective view of the wheel of the device for applying correction tape;

Fig. 17 is a bottom plant view of the wheel of the device for applying correction tape;

Fig. 18 is a top plant view of the wheel of the device for applying correction tape;

Fig. 19 is an elevational view of the wheel of the device for applying correction tape;

Fig. 20 is an elevational sectional view of the wheel of the device for applying correction tape taken along plane B-B' in fig. 17;

Fig. 21 is a sectional fragmentary view in detail of the wheel of the device for applying correction tape taken along plane C-C' in fig. 18;

Fig. 22 is a fragmentary enlarged view of one of the legs of the means to permit rotation of the wheel in a single direction;

Fig. 23 is a top plan view of the upper portion of the wheel of the device for applying correction tape where the structure and arrangement of the legs of the means to permit rotation of the wheel in a single direction are shown;

Fig. 24 is a graph of the angle rotated by the wheel due to the deformation of the legs and the necessary minimum coefficient of friction for locking depending on the inclination of the legs relative to the radial direction;

Fig. 25 is a perspective view of the device for applying correction tape lacking the upper body of the housing and with the applicator head separated from the lower body, the upper portion of the wheel being shown with correction tape support spool and the path thereof outwards the housing;

Fig. 26 is a perspective view of the device for applying correction tape similar to view of fig. 25 but taken from another point of view;

Fig. 27 is a perspective view of the device for applying correction tape lacking the upper body of the housing and with the applicator head separated from the lower body, the lower portion of the wheel being shown with the already used correction tape support spool and the path thereof towards the interior of the housing;

Fig. 28 is a perspective view of the device for applying corrector tape similar to view of fig. 27 but taken from another point of view.

[0032] Described parts in relation to the figures are listed below:

(1) housing of the device for applying correction tape;
 (1a) peripheral recess;
 (2) lower body of the housing;
 (2a) hollow cylinders of the lower body of the housing;
 (2b) flanges of the lower body of the housing for the head assembly;
 (3) upper body of the housing;
 (3a) ridges of the upper body of the housing;
 (4) wheel;
 (5) applicator head of the device for applying correction tape;
 (6) correction tape spool;
 (7) correction tape;
 (7a) new tape corrector;
 (7b) used tape corrector;
 (8) upper portion of the wheel;
 (9) lower portion of the wheel;
 (10) clutch means;
 (11) means to permit rotation of the wheel in a single direction;
 (12) guides of the lower body of the housing for the assembly of the head;
 (13) shaft formed at the lower body of the housing;
 (14) ridge housed inside the shaft of the lower body of the housing;
 (15) legs of the means to permit rotation of the wheel in a single direction;
 (16) walls of the upper portion of the wheel where the legs emerge;
 (17) free ends of the legs;
 (18) flanges of the clutch means;
 (19) ring of the clutch means;
 (19a) inner step for fastening the ring in the wheel;
 (20) tip of the applicator head;
 (21) stops of the tip of the applicator head;
 (22) reinforcement ribs of the tip of the applicator head;
 (23) guide walls of the tip of the applicator head;
 (24) lateral lugs of the applicator head;
 (25) lateral walls of the applicator head;
 (26) rounded edges of the lateral walls of the applicator head;
 (27) points of contact of the longitudinal symmetry axis of the legs with the shaft of the lower body of the housing; (α) angle of inclination of the legs. Angle formed by the longitudinal symmetry axis of each leg and the straight line joining the points of contact with the shaft of the lower body of the housing in the radial direction;
 (E) longitudinal symmetry axis of the legs;
 (E') straight line joining the points of contact with the shaft of the lower body of the housing in the radial direction;
 (R) coefficient of friction of the wheel; and
 (G) angular distance travelled by the wheel.

[0033] In figs. 1 to 28 an embodiment of a device for applying correction tape according to the present invention has been shown.

[0034] This device for applying correction tape comprises a housing generally shown by reference numeral (1) in figs. 3, 4 and 5, having a lower body (2) and an upper body (3) which may be engaged to one another. The purpose of the housing (1) is to protect the correction tape supply mechanical assembly.

[0035] The bodies (2, 3) of the housing (1) are made preferably of polystyrene with the purpose of obtaining a good surface finishing with a reduced cost. This material allows to obtain a transparent device, allowing the user to easily check the application of the corrector tape on the paper where the text to be corrected is. Text may also be coloured since said material allows the possibility of coloration. It could also be made of SAN which is also transparent, although it is more expensive. When selecting materials, use of polypropylene is ruled out due to its poor transparency as a semi-crystalline material and due to the poor dimensional stability of this material.

[0036] As it can be seen, the housing (1) of the device for applying correction tape of the embodiment that is being described has a symmetrical configuration, so that the lower body (2) and the upper body (3) both have a plane of symmetry that is perpendicular to their common plane.

[0037] The upper body (3) of the housing (1) is pressure fitted into the lower body (2). The lower body (2) is therefore provided with a peripheral recess designed by reference numeral (1a) and hollow cylinders (2a) adapted to receive ridges (3a) emerging from the inside of the upper body (3), see figs. 1 and 2, providing a reliable closure of the two bodies (2, 3) of the housing (1).

[0038] The device for applying correction tape also comprises a wheel (4), an applicator head (5) and a support spool (6) for a correction tape (7), as shown in figs. 25, 26, 27 and 28 of the drawings enclosed in the present specification.

[0039] As it can be seen from fig. 3, the upper body (3) of the housing (1) has a surface that is curved outwardly and narrowing towards the applicator head (5) in continuity with the general configuration thereof.

[0040] Making reference to figs. 19, 25, 26, 27 and 28, the wheel (4) has the purpose of unwinding the new tape (7a), winding the used tape (7b) and it is provided with means (11) to permit rotation thereof in a single direction as well as clutch means (10).

[0041] The wheel (4) has an upper portion (8) adapted to receive the support spool (6) for supplying the correction tape (7a) and a lower portion (9) for taking-up the used correction tape (7b).

[0042] According to fig. 8, the wheel (4) is provided with clutch means (10) arranged in the upper portion (8) of the wheel (4) and they have the purpose of synchronizing the movement of said wheel (4) and the support spool (6) of the correction tape (7). As it has been ex-

plained, the wheel (4) is also provided with the above mentioned means (11) to permit rotation in a single direction.

[0043] Guides (12) are emerging from the lower body (2) of the housing (1) and serve the purpose of fastening the applicator head (5).

[0044] Likewise, the wheel (4) that is preferably made of modified polystyrene with additives with the purpose of avoiding mechanical noises due to friction between parts made of the same plastic material, is rotatably mounted in a cylindrical shaft (13) formed at the lower body (2) of the housing. The cylindrical shaft (13) is adapted to receive a ridge (14) formed at the upper body (3) of the housing (1).

[0045] The means (11) to permit rotation in a single direction comprise six legs (15) extending from curved walls (16) provided inside the wheel (4).

[0046] These legs (15) extend from said walls (16) of the wheel (4) slightly inclined inwardly the free ends (17) of which rest on the lateral surface of the cylindrical shaft (13) of the housing (1). In the embodiment that is being described, inclination (α) of the legs (15) is 7° , as it can be seen from fig. 23. This inclination (α) is calculated so that the legs (15) permit rotation of the wheel (15) in a single direction, as they are locked on the shaft (13) of the housing if wheel (4) is made to be counter rotated. The lateral surface of the shaft (13) is therefore slightly splined.

[0047] Design of means (11) to permit rotation of the wheel (4) in a single direction has sought the number of legs (15) causes a correct centering and positioning of the wheel (4).

[0048] The means (11) to permit rotation of the wheel (4) in a single direction operate by means of the locking phenomenon wherein an easily achievable coefficient of friction (R) is attained. If the user tries to use the device for applying the correction tape in the wrong way round, the legs (15) are frictionally locked in the shaft (13) of the housing (1) where the wheel (4) is mounted due to the rough lateral surface thereof that encourages locking of these legs (15).

[0049] The more determining factor of design in the construction of said means (11) is the inclination (α) of the legs (15) as it determines to a large extent whether locking of the assembly exists. Said inclination (α) influences the direction of the resultant force exerted by the leg (15) on the lateral surface of the shaft (13) of the housing (1). If the direction of said resultant force is in the range of the friction cone, the wheel (4) becomes locked if it is made to be counter rotated.

[0050] The locking phenomenon is closely related with the friction phenomenon. However, in the locking phenomenon, as opposed to what occurs in the sliding friction phenomenon, the normal and tangential forces are increased in the same proportion as the application force is increased so that the limit force of friction is not overcome and slide does not take place. No matter how much the applied force is increased since the limit force

of friction is always higher. This phenomenon is used in the design of the means (11) to permit rotation of the wheel (4) in a single direction, as it has been previously described.

[0051] Reference is now made to fig. 24 wherein a graph showing the angle (G) rotated by the wheel (4) due to the deformation of the legs (15) is illustrated. As it can be seen from such graph, for a basic configuration there exists an optimum angle of inclination (α) of the legs (15). Line (R) indicates the necessary minimum coefficient of friction.

[0052] According to fig. 23, the angle of inclination (α) of the legs (15) is the angle between the longitudinal symmetry axis (E) of the leg (15) and the straight lines (E') defined by the points of contact (27) with the shaft (13) in the radial direction.

[0053] Turning again to fig. 24, it can be seen, however, that the angle (α) corresponding to the optimum angle is very small (only 2°) and the turn (G) performed by the wheel (4) has a very high value [see line (G) showing the angular distance travelled by the wheel (4)]. Owing to this fact, the point corresponding to the most favourable case is not an advisable point for the operation of the means (11) to permit rotation of the wheel (4) in a single direction, since reversion of the legs (15) could be easily caused and consequently a wrong operation of such means (11) from that moment. It is therefore advisable the angle (α) of the legs (15) has a surer value, such as 7° , although the necessary value of the coefficient of friction (R) is slightly increased.

[0054] The clutch means (10) of the device for applying correction tape of the embodiment that is herein described are provided at the upper portion (8) with the wheel (4). Said clutch means (10) are intended to synchronize the movement of the wheel (4) and the support spool (6) of the correction tape (7).

[0055] The clutch means (10) comprise six flanges (18) provided at the wheel (4) in alternating position relative to the walls (16) where the legs (15) are emerging. These flanges (18) are radially outwardly projecting so that their ends are in contact with the lateral surface of a ring (19) that is fitted between the support reel (6) of the correction tape (7) and the upper portion (8) of the wheel (4). The ring (19) is made of modified polystyrene with additives to avoid mechanical noises between pieces made of the same plastic material with the purpose of permitting the relative rotation of the wheel (4) and the support reel (6) of the correction tape (7) and thus to efficiently compensate for the tension between the tape that is being supplied (7a) and the tape that has already been used (7b).

[0056] The ring (19) has at least an inner step (19a) for fastening the ring (19) in the wheel (4). In a possible embodiment of the clutch means (10), the ring (19) comprises two inner parallel steps (19a) for fastening the ring (19) in the wheel (4) which are formed at equal distances from the edge of the ring (19).

[0057] Therefore, as the device for applying correc-

tion tape is used, the necessary tension between the supplied tape (7a) and the tape that is being taken-up (7b) is always maintained. The clutch means (10) frictionally operates between the outer surface of the flanges (18) and the ring (19). The flanges (18) perform the function of creating a pressure on the ring (19) so that the necessary friction exists to supply or to retain the correction tape (7) and to always maintain the correct tension thereof and they also serve the purpose of holding the spool (6) carrying the correction tape (7).

[0058] Reference is now specially made to figs. 9 to 12 of the drawings wherein the head (5) that is the element that applies and guides the correction tape (7), is made of polyacetal (POM), which has a high sliding ability, a high mechanical strength as well as a marked elasticity. The head has a tip (20) designed in such a way that it is able to absorb the necessary deformation and force when using the device. More specifically, the tip (20) of the head (5) is able to absorb a deformation of the order of 0,5 mm. When this value is reached, stops (21) make contact with the upper body (3) of the housing (1) and the tip (20) is then further deformed 1,2 mm. Stops (21) prevent the tip (20) from being unduly deformed during application of the correction tape (7).

[0059] As it can be seen from said figs. 9 to 12, the tip (20) has a reduced thickness so that the tape (7) is correctly applied on the paper. The edge of the tip (20) is rounded with a small radius of curvature so that the film is clearly released from the tape (7). This is very advantageous when correction tape (7) that should accurately cover the incorrect text -and only this- is applied.

[0060] Due to reduced thickness, the tip (20) of the head (5) is appropriately reinforced to resist the application efforts to which the applicator head (5) is subjected when using the device for applying the correction tape. Reinforcing ribs (22) are therefore provided at the end of the tip (20).

[0061] Following with the configuration of the head (5), walls (23) having a rounded outer configuration are emerging perpendicular to both sides of said head (5). Said walls (23), formed at the tip (20) of the head (5), have the purpose of appropriately guiding the correction tape (7) through the tip (20) of the head (5).

[0062] As it can be seen from fig. 3 and 4, the shape of the walls (23) provides the head (5) with such a configuration that follows the general shape of the housing (1) without breaking the overall aesthetic line of the device.

[0063] On the other hand, the head (5) of the device for applying tape dispenser has lateral lugs (24) used for the assembly thereof in the lower body (2) of the housing (1). This lower body (2) of the housing (1) thus includes flanges (2b) and guides (12) to appropriately receive said lateral lugs (24) of the head (5).

[0064] An important feature of the head (5) that is herein described according to the present invention is that it comprises means for guiding the correction tape

(7) in its travel towards and from the tip (20). These guide means consist of two lateral walls (25) inclined in the same direction as shown in figs. 13 and 14. Said walls (25) have a rounded edge (26) formed at the inlet portion of the correction tape (7) towards the head (5) and back to the inside of the housing (1), respectively.

[0065] The fact that the applicator head (5) lies on a plane substantially parallel to the plane common to both bodies (2, 3) of the housing (1) and that these upper and lower bodies (2, 3) have a plane of symmetry perpendicular to the common plane thereof, allows to provide a device which may be used either by right-handed and left-handed users in a natural and comfortable way.

[0066] It should be especially taken into account the fact that the symmetry of the housing (1) as well as the configuration thereof allows to avoid the use of guides to conduct the correction tape (7) as it is guided in a natural way towards the head (5). This allows the costs of automated assembly of the device for applying correction tape of the invention to be reduced as the path of the tape inside the housing (1) is far less complex.

[0067] Finally, it is to be pointed out that, although it has not been shown in the figures, the upper portion (8) of the wheel (4) may be provided with a cover coupled thereto which rotates during application of the correction tape (7). This cover is to conceal said wheel (4) and/or to carry ornamental or advertising motifs therein.

[0068] Once having been sufficiently described what the present patent application consists in accordance to the enclosed drawings, it is understood that any detail modification can be introduced as appropriate, provided that variations may alter the essence of the invention as summarised in the appended claims.

Claims

1. Device for applying correction tape, adhesive tape and the like comprising:

a housing (1) inside of which a correction tape (7), adhesive tape or the like wound in a support spool (6) are received;

a pay-out reel for supplying new corrector tape (7a) which is rotatably mounted in said housing (1) where said support spool (6) is disposed;

a take-up reel to wind the correction tape that has been already used (7b);

a head (5) intended to apply the correction tape (7) on the surface of the paper where the writing to be corrected is,

characterized in that:

said pay-out reel and said take-up reel are provided in a single wheel (4);

said wheel (4) comprises an upper portion (8) adapted to receive the support spool (6) for

- supplying the correction tape (7a) and a lower portion (9) to collect the used corrector tape (7b);
 said wheel (4) is provided with clutch means (10) arranged at the upper portion (8) of said wheel (4) to absorb desynchronising between the movement of the wheel (4) and that of the spool of the correction tape (6);
 and said wheel (4) further comprises means (11) to permit rotation of the wheel (4) in a single direction.
2. Device for applying correction tape, adhesive tape and the like according to claim 1, **characterized in that** the housing (1) is provided with a shaft (13) and the means (11) to permit rotation of the wheel (4) in a single direction comprise a plurality of legs (15) formed in the wheel (4) which are inwardly extending slightly inclined so that their ends (17) rest on the lateral surface of said shaft (13) of the housing (1) permitting rotation of the wheel (4) in a single direction.
 3. Device for applying correction tape, adhesive tape and the like according to claim 2, **characterized in that** the means (11) to permit rotation of the wheel (4) in a single direction comprise six legs (15).
 4. Device for applying correction tape, adhesive tape and the like according to any of the claims 2 or 3, **characterized in that** said legs (15) are inclined at an angle (α) ranging from 2° to 30°.
 5. Device for applying correction tape, adhesive tape and the like according to any of the claims 2 or 3, **characterized in that** said legs (15) are inclined at an angle (α) of 7°.
 6. Device for applying correction tape, adhesive tape and the like according to claim 2, **characterized in that** the shaft (13) of the housing (1) has a rough lateral surface to encourage the frictional contact with the ends (17) of the legs (15).
 7. Device for applying correction tape, adhesive tape and the like according to claim 1, **characterized in that** the clutch means (10) which allow sliding between the wheel (4) and the spool (6) of the correction tape (7) comprise a number of radially outwardly projecting flanges (18) provided at the upper portion (8) of the wheel (4) the ends of which are in contact with the lateral surface of a ring (19) fitted between the support spool (6) of the correction tape (7) and the upper portion (8) of the wheel (4), said ring (19) permitting the relative rotation of both elements to compensate for the tension between the tape that is being supplied (7a) and the already used tape (7b).
 8. Device for applying correction tape, adhesive tape and the like according to claim 7, **characterized in that** the clutch means (10) comprise six flanges (18) formed at the upper portion (8) of the wheel (4) allowing the fastening of the support spool (6) of the correction tape (7).
 9. Device for applying correction tape, adhesive tape and the like according to claim 7, **characterized in that** said ring (19) comprises at least an inner step (19a) for fastening the ring (19) in the wheel (4).
 10. Device for applying correction tape, adhesive tape and the like according to claim 7, **characterized in that** said ring (19) comprises two inner parallel steps (19a) for fastening the ring (19) in the wheel (4), which are formed at equal distances from the edge of the ring (19).
 11. Device for applying correction tape, adhesive tape and the like according to claim 1, **characterized in that** the head (5) is provided with upper stops (21) which contact the housing (1) when using the device preventing the tip (20) of the head (5) from being excessively deformed during application.
 12. Device for applying correction tape, adhesive tape and the like according to claim 1, **characterized in that** the head (5) is provided with lateral lugs (24) adapted for the assembly thereof into complementary recesses defined by flanges (2b) and guides (12) provided inside the housing (1).
 13. Device for applying correction tape, adhesive tape and the like according to claim 1, **characterized in that** the head (5) comprises means for guiding the correction tape (7) in the travelling thereof towards and from the tip (20) of the head (5).
 14. Device for applying correction tape, adhesive tape and the like according to claim 13, **characterized in that** said guide means comprise two lateral walls (25) that are inclined in the same direction, said walls (25) being provided with a rounded edge (26) formed at the inlet portion of the correction tape (7) towards the head (5) and back to the inside of the housing (1), respectively.
 15. Device for applying correction tape, adhesive tape and the like according to claim 1, **characterized in that** said housing (1) comprises an upper body (3) and a lower body (2) which may be coupled to one another, said upper body (3) having a surface curved towards the head (5) in continuity with the general configuration of the head (5), said surface being narrowed towards said head (5).
 16. Device for applying correction tape, adhesive tape

and the like according to any of the claims 1 or 15, characterized in that the upper body (3) and the lower body (2) of the housing (1) have a plane of symmetry perpendicular to the common plane thereof, said head (5) laying on a substantially parallel plane to said plane that is common to both bodies (2, 3) of the housing thus permitting the apparatus to be used either by right-handed and left-handed users.

5

10

17. Device for applying correction tape, adhesive tape and the like according to claim 1, characterized in that the upper portion (8) of the wheel (4) is provided with a cover coupled thereto which rotates during application of the correction tape (7), said cover having the purpose of occluding said wheel (4) and/or carrying ornamental or advertising motifs therein.

15

20

25

30

35

40

45

50

55

FIG.1

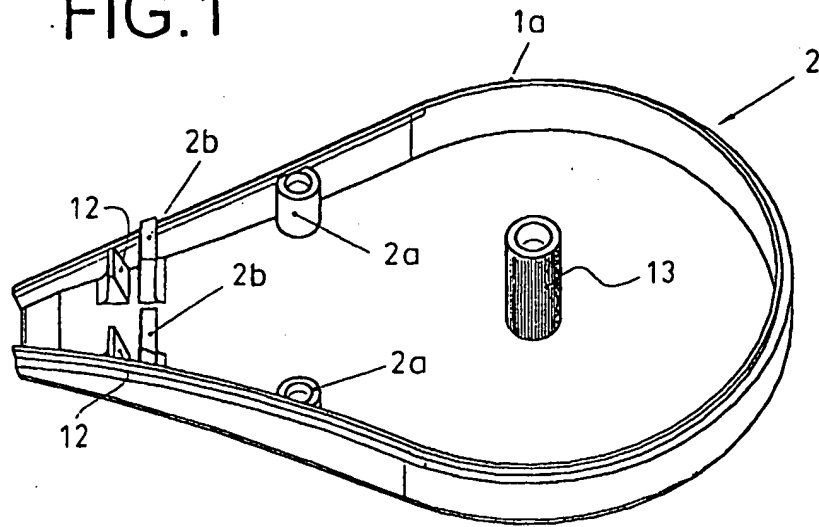


FIG.2

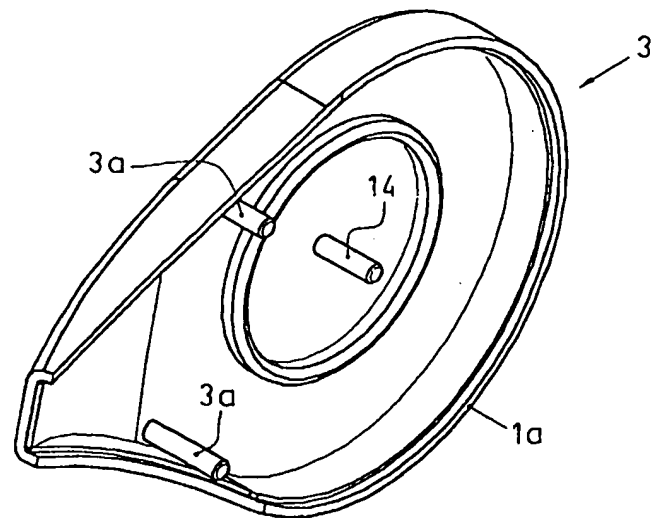


FIG.3

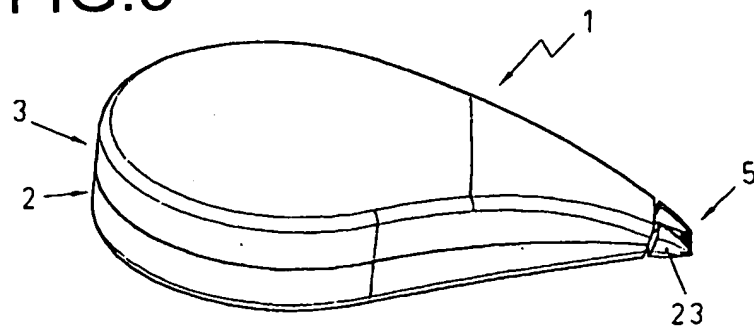


FIG.4

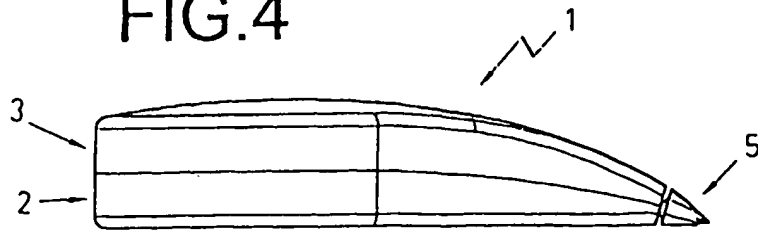


FIG.5

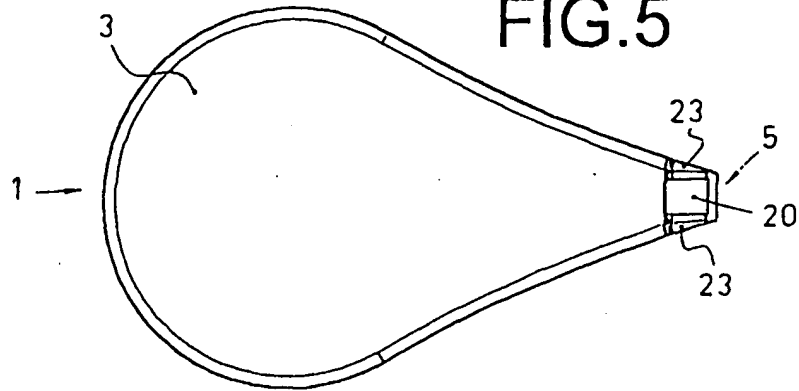


FIG.6

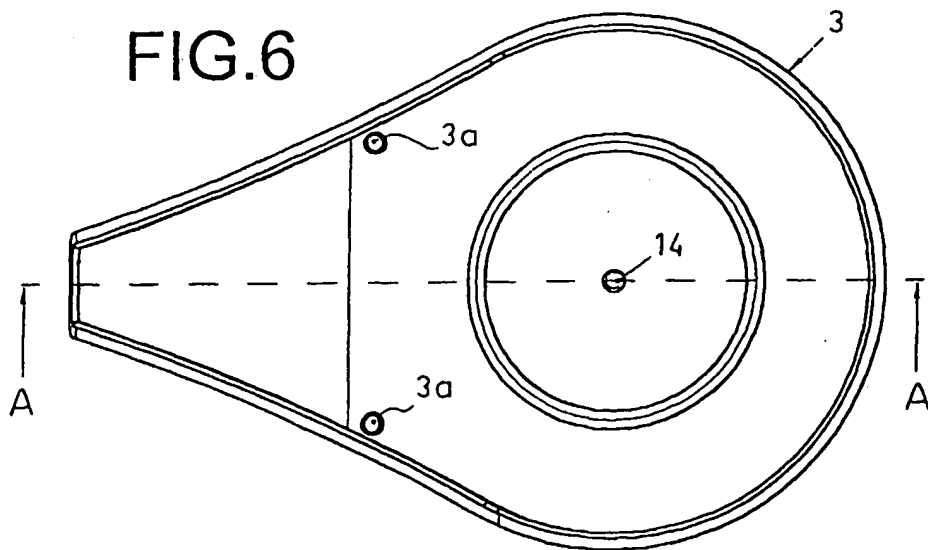


FIG.7

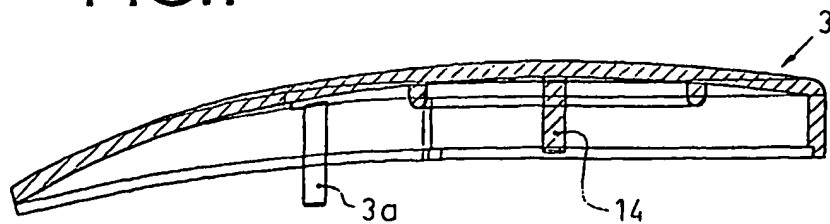


FIG.8

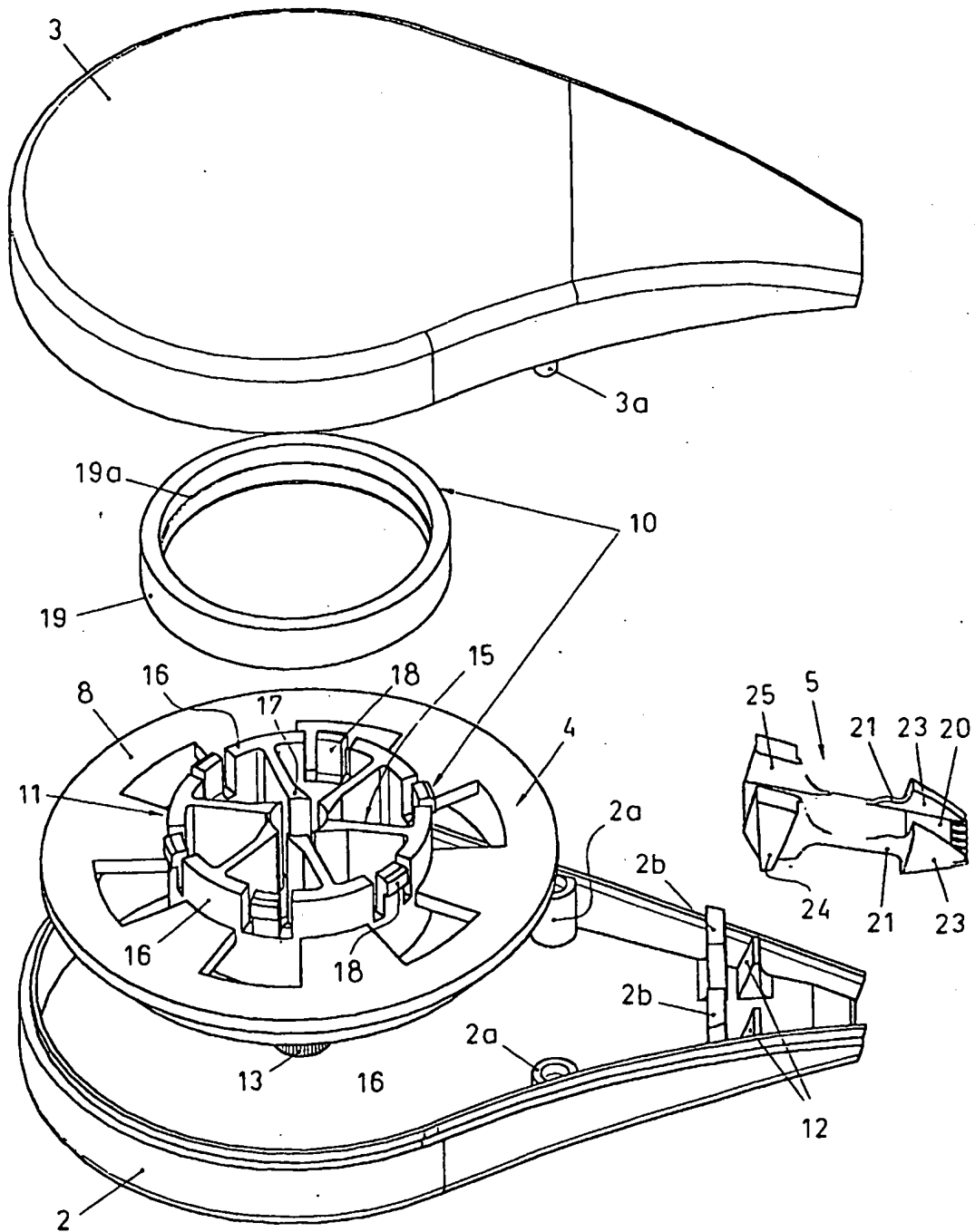


FIG.9

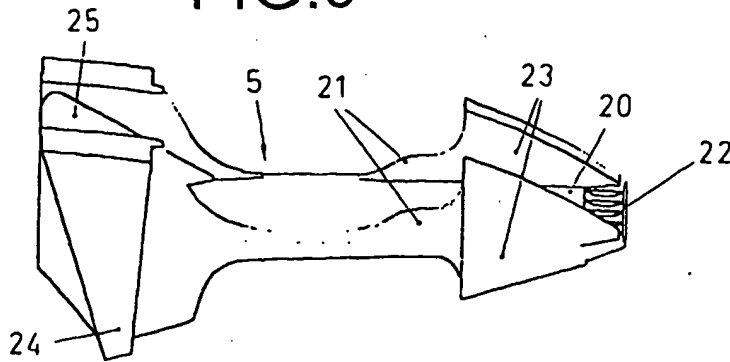


FIG.10

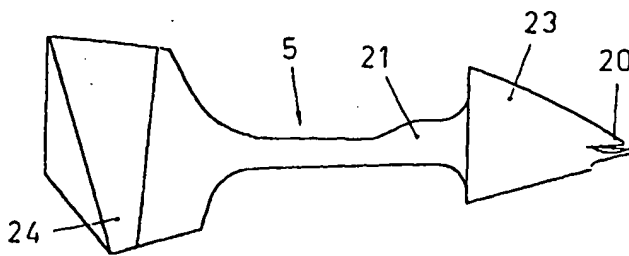


FIG.13

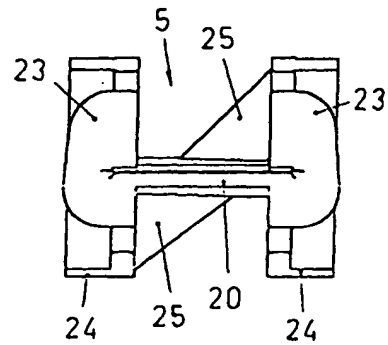


FIG.11

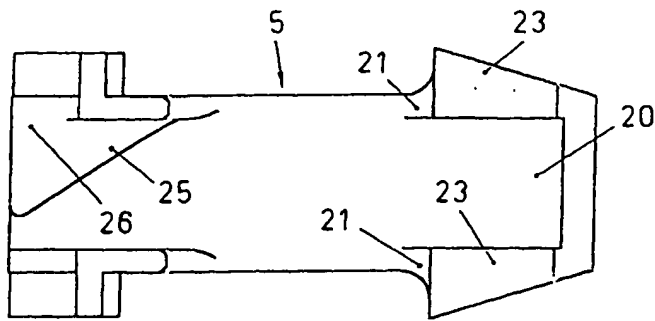


FIG.14

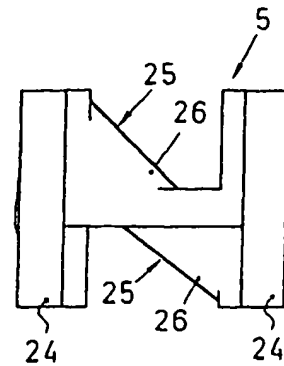


FIG.12

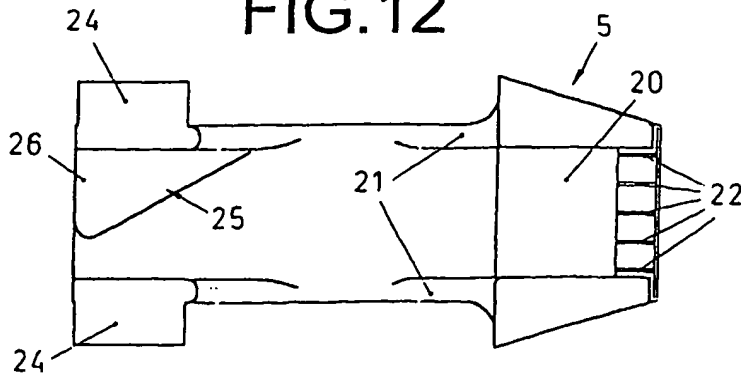


FIG.15

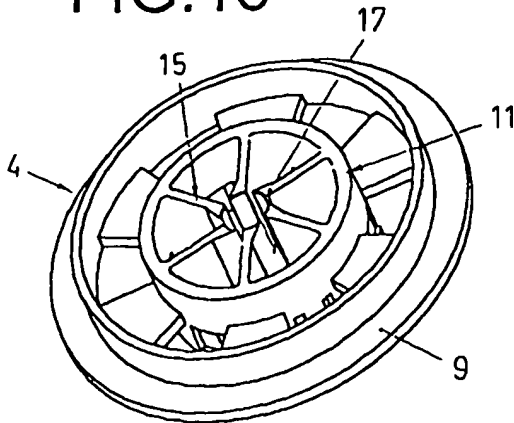


FIG.16

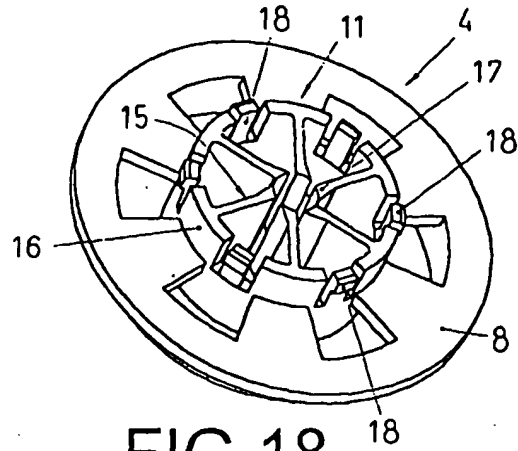


FIG.17

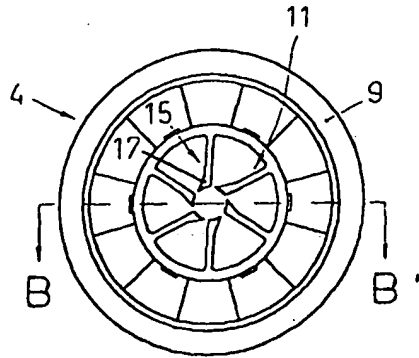


FIG.18

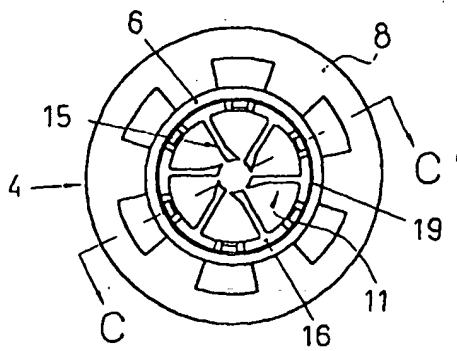


FIG.19

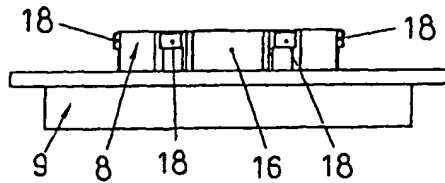


FIG.20

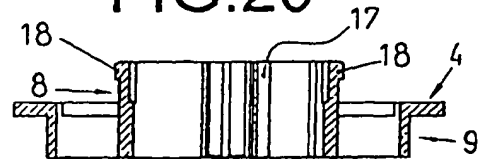


FIG.23

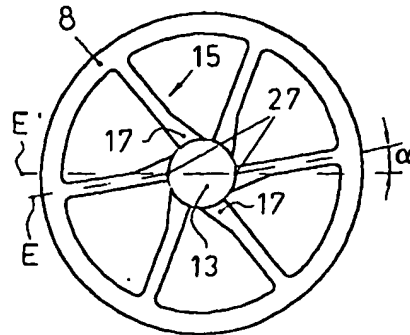


FIG.21

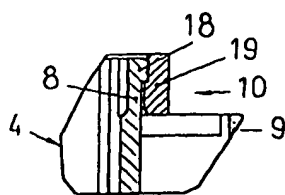


FIG.22

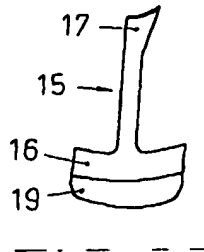


FIG.24

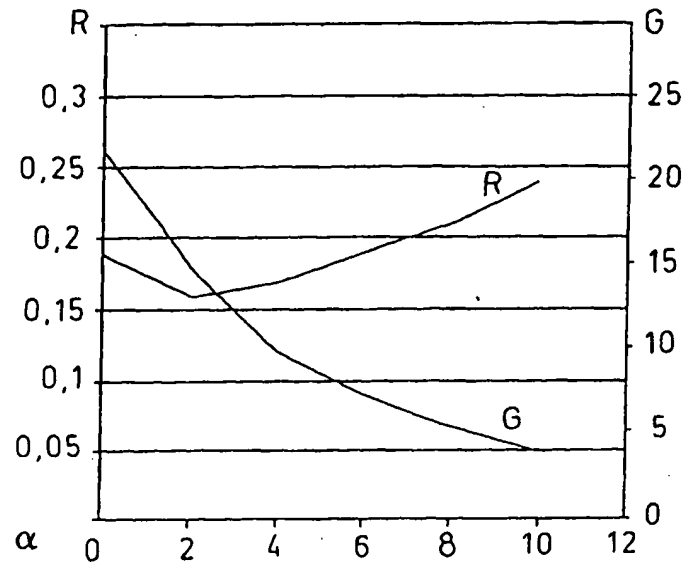


FIG.25

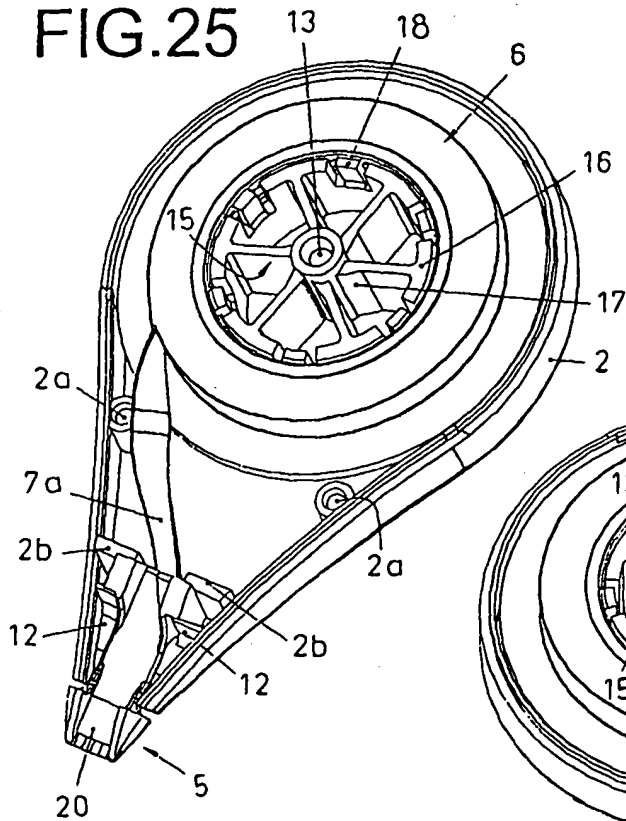


FIG.26

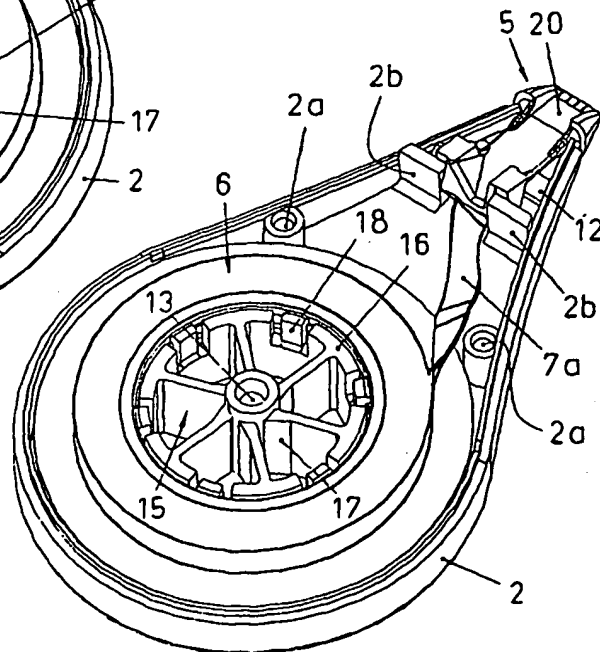


FIG.27

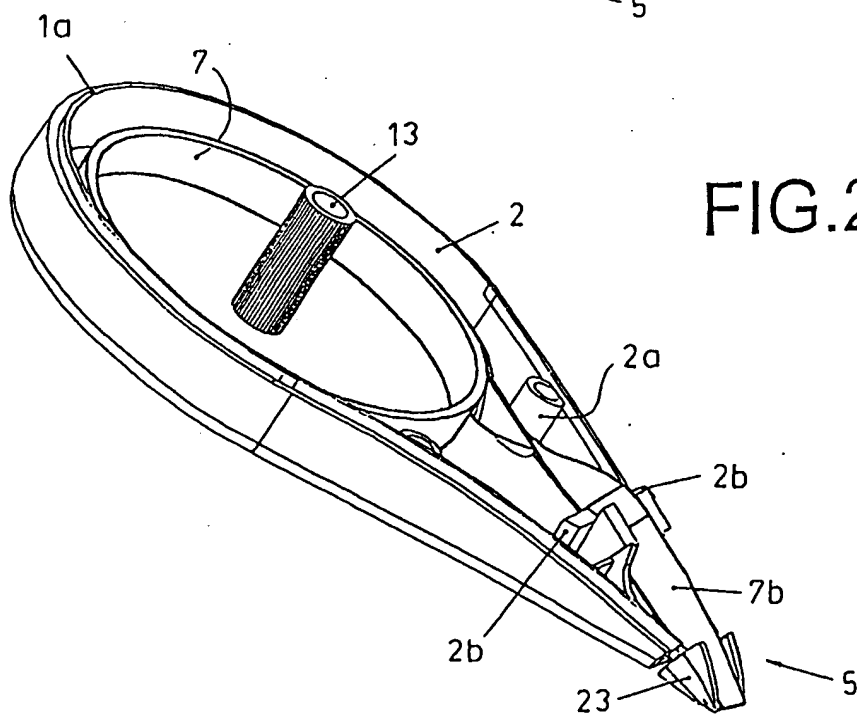
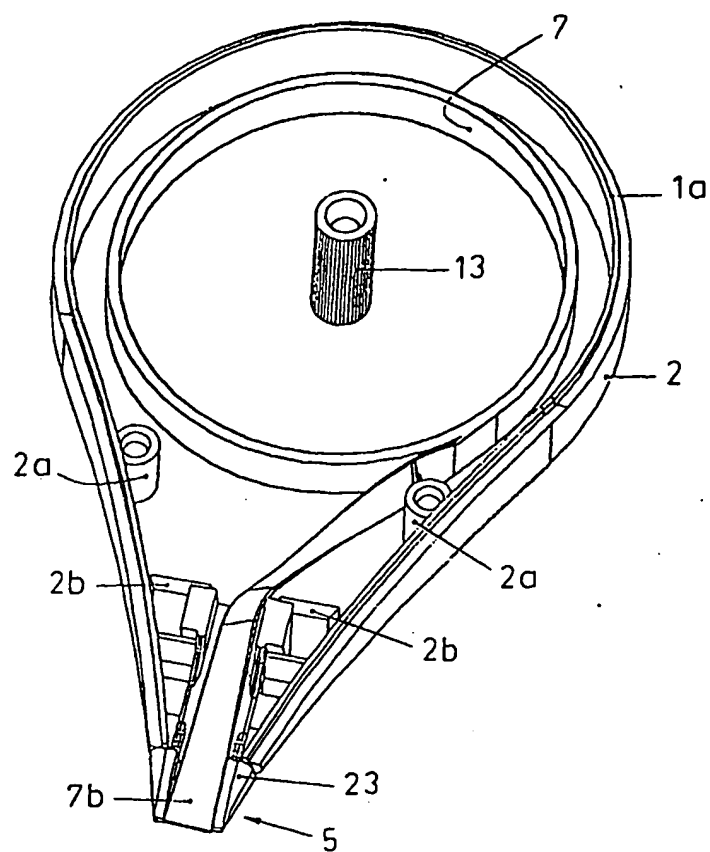


FIG.28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 01/00405

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷ B63H 37/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷ B 63 H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

ES

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CIBEPAT, EPODOC, WPI, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	EP- 905074- A2 (Seed Rubber Company Ltd) 31.03.1999. column 6, lines 23-43: column 7, lines 34-40, 52.58; column 8, lines 38-45; column 9, line 33-column 13, line 12; figures 1-8	1 2,7-17
Y A	US- 5512128- A (Manusch et al.) 30.04.1996, column 2, lines 64-column 3, line 52; figures.	1 2, 13, 15-17
A	EP- 893384- A2 (Tombow Pencil Co. LTD) 27.01.1999, column 3, line 18-column 4, line 57; figures.	1,11-14,16
A	US- 5310437- A (Tucker) 10.05.1994, the whole document.	1
A	WO- 9746475- A1 (Kores) 11.12.1997, abstract; figures.	1

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"A" document member of the same patent family

Date of the actual completion of the international search

21 January 2002 (21.01.2002)

Date of mailing of the international search report

25 January 2002 (25.01.2002)

Name and mailing address of the ISA/

S.P.T.O.

Authorized officer

Facsimile No.

Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT
 Information on patent family members

 International Application No
 PCT/ ES 01/00405

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 905074 A2	31.03.1999	CA 2242149 A	12.03.1999
		JP 11078382 A	23.03.1999
		CN 1211511 A	24.03.1999
		AU 8320998 A	25.03.1999
		US 6062286 A	16.05.2000
		TW 408067	11.10.2000
US 5512128 A	30.04.1996	DE 4322118 C	17.11.1994
		EP 631958 AB	04.01.1995
		JP 7089665 A	04.04.1995
		JP 2612148B2 B	21.05.1997
		DE 59400133D D	04.04.1996
EP 893384 A2	27.01.1999	JP 11034587 A	09.02.1999
		US 6059002 A	09.05.2000
		TW 417608Y Y	01.01.2001
		DE 69802627D D	10.01.2002
US 5310437 A	10.05.1994		
WO 9746475 A1	11.12.1997	AT 2013U U	25.03.1998
		EP 907602 A	14.04.1999
		BR 9709642 A	10.08.1999
		JP 2000514725 T	07.11.2000

Form PCT/ISA/210 (patent family annex) (July 1992)

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☒ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.